

Introduction to Statistics and Econometrics

Lectures: T/Th, 2:00pm - 3:20pm, Eggers 032
Instructor: Prof. Yoonseok Lee (Eggers 426, ylee41@maxwell.syr.edu)
Office Hours: TBA

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(Office Hours: TBA)

Course Description

This course provides basic knowledge of probability, statistics and regression analysis for undergraduate economics majors. The course is intended for BA economic students and is not a substitute for ECN 521 and/or ECN 522. Upon completion of this course, students can read empirical literature in economics and carry out their own basic economic data analysis. No prior knowledge of statistics is assumed, though basic college-level calculus is expected. No credit is granted to those who have completed or are enrolled in ECN 521 and/or ECN 522. (*Prerequisites:* ECN [301 or 311] and ECN 302; Declared majors and minors only)

The class web page is available at <http://blackboard.syr.edu>. Announcements, lecture slides, problem set questions, and additional course materials are to be posted there, so make sure to visit the site frequently. Hard copies of these materials will *not* be distributed.

Textbooks

The textbook for the course is:

Keller, G. (2015). *Statistics for Management and Economics*, Abbreviated, 10th ed., Cengage Learning.

Many problem set questions are from this textbook. If you want more advanced (and more math-involved) textbook, the following one would be helpful, which is not required for this course though:

Hogg, R.V., E.A. Tanis, and Zimmerman (2014). *Probability and Statistical Inference*, 9th ed., Pearson.

Organization and Evaluation

Grade is based on weekly in-class quizzes; there are no additional midterm/final exams. Thirteen quizzes are scheduled; the final grade is to be based on eleven quiz scores after omitting the lowest two. The quizzes are scheduled every Thursday during the regular lecture hours (except the first week of the semester) on the following dates:

[Quiz 1] Jan.26;
[Quiz 2] Feb.2; [Quiz 3] Feb.9; [Quiz 4] Feb.16; [Quiz 5] Feb.23;
[Quiz 6] Mar.2; [Quiz 7] Mar.9; [Quiz 8] Mar.23; [Quiz 9] Mar.30;
[Quiz10] Apr.6; [Quiz11] Apr.13; [Quiz12] Apr.20; [Quiz13] Apr.27

Weekly problem sets are to be posted on the Blackboard web site on every Friday, a week before each quiz. So make sure to visit the site frequently. Students are encouraged to form study groups and collaborate with other students to work on problem set questions.¹ However, students do not need to turn in the problem sets. Instead, the weekly quiz questions are very similar to the problem set questions posted in the previous week. For example, the Quiz 1 (on Jan.26) questions are from the problem set posted on Friday, Jan.20, which covers the lecture materials during the week of Jan.16.

All quizzes are closed-book. No makeup quizzes nor early quizzes will be given for any reason, so please plan your travels smartly.

Course Outline and Schedule

I. Probability

1. Introduction and Descriptive Statistics (Ch 1 - 4)
2. Probability Theory (Ch 6)
3. Random Variables and Distribution Theory (Ch 7.1 - 7.3)
4. Important Distributions (Ch 7.4 - 7.5, 8)

II. Statistical Inference

1. Sampling Distribution (Ch 5, 9)
2. Point Estimation (Ch 10)
3. Interval Estimation (Ch 10)
4. Hypothesis Testing (Ch 11 - 13)

¹A word of advice: When you write the solution, provide the major steps of your calculation as you are taking exams. It is a good training for organizing and explaining your idea. When you are taking the quizzes, you will not be able to get the full credit if you simply write down the final answers without providing details.

III. Regression Analysis

1. Linear Regression Model (Ch 16)
2. Least Squares Estimation (Ch 16)
3. Multiple Regression (Ch 17)

Class Schedule

| Date | Coverage | Date | Coverage |
|---------|---|----------|------------------------|
| 1/17(T) | Introduction & Descriptive Statistics | 1/19(Th) | Descriptive Statistics |
| 1/24(T) | Probability Theory | 1/26(Th) | Quiz 1 & review |
| 1/31(T) | Probability Theory | 2/02(Th) | Quiz 2 & review |
| 2/07(T) | Probability Theory | 2/09(Th) | Quiz 3 & review |
| 2/14(T) | Random Variables and Distribution | 2/16(Th) | Quiz 4 & review |
| 2/21(T) | Random Variables and Distribution | 2/23(Th) | Quiz 5 & review |
| 2/28(T) | Important Distributions | 3/02(Th) | Quiz 6 & review |
| 3/07(T) | Important Distributions | 3/09(Th) | Quiz 7 & review |
| 3/14(T) | <i>Break</i> | 3/16(Th) | <i>Break</i> |
| 3/21(T) | Sampling Distribution; Point Estimation | 3/23(Th) | Quiz 8 & review |
| 3/28(T) | Interval Estimation | 3/30(Th) | Quiz 9 & review |
| 4/04(T) | Interval Estimation | 4/06(Th) | Quiz 10 & review |
| 4/11(T) | Hypothesis Testing | 4/13(Th) | Quiz 11 & review |
| 4/18(T) | Hypothesis Testing | 4/20(Th) | Quiz 12 & review |
| 4/25(T) | Linear Regression Models | 4/27(Th) | Quiz 13 & review |

Note: The schedule could be changed based on the class performance.

Academic Integrity Syracuse University's Academic Integrity Policy reflects the high value that we, as a university community, place on honesty in academic work. The policy defines our expectations for academic honesty and holds students accountable for the integrity of all work they submit. Students should understand that it is their responsibility to learn about course-specific expectations, as well as about university-wide academic integrity expectations. The policy governs appropriate citation and use of sources, the integrity of work submitted in exams and assignments, and the veracity of signatures on attendance sheets and other verification of participation in class activities. The policy also prohibits students from submitting the same work in more than one class without receiving written authorization in advance from both instructors. Under the policy, students found in violation are subject to grade sanctions determined by the course instructor and non-grade sanctions determined by the School or College where the course is offered as described in the Violation and Sanction Classification Rubric. SU students are required to read an online summary of the University's academic integrity expectations and provide an electronic signature agreeing to abide by them twice a year during pre-term check-in on MySlice. For more information about the policy, see <http://academicintegrity.syr.edu>.

The Violation and Sanction Classification Rubric establishes recommended guidelines for the determination of grade penalties by faculty and instructors, while also giving them discretion to select the grade penalty they believe most suitable, including course failure, regardless of violation level. Any established violation in this course may result in course failure regardless of violation level.

Accommodations for Students with Disabilities If you believe that you need accommodations for a disability, please contact the Office of Disability Services (ODS), located in Room 309 of 804 University Avenue, or call (315) 443-4498 for an appointment to discuss your needs and the process for requesting accommodations. ODS is responsible for coordinating disability-related accommodations and will issue students with documented Disabilities Accommodation Authorization Letters, as appropriate. Since accommodations may require early planning and generally are not provided retroactively, please contact ODS as soon as possible. For more information, see <http://disabilityservices.syr.edu/faculty-staff/contact-us/>.